

**SEMICONDUCTOR DEVICE HAVING ONE-TIME
PROGRAMMABLE ROM AND METHOD OF FABRICATING
THE SAME**

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ABSTRACT OF THE DISCLOSURE

A semiconductor device with a one-time programmable (OTP) ROM disposed over a semiconductor substrate including a memory cell area and a peripheral circuit area includes a MOS transistor and an OTP ROM capacitor. The MOS transistor has a floating gate electrode and is disposed at the memory cell area. The OTP ROM capacitor has a lower electrode, an upper intermetal dielectric, and an upper electrode which are stacked in the order named. The OTP ROM capacitor is disposed on the MOS transistor, and the floating gate electrode and the lower electrode are connected by a floating gate plug to constitute an electrically insulated conductive structure. The upper intermetal dielectric is made of at least one selected from the group consisting of silicon oxide, silicon nitride, and silicon oxynitride and may be disposed on an entire surface of the semiconductor substrate. A capacitor formed together with the OTP ROM is disposed at the peripheral circuit region.

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